Attributional and consequential methods are both necessary for managing responsibility

Attributional and consequential methods are both necessary for managing responsibility – Reply to Weidema et al. (2019)

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Abstract

This letter is intended to advance an ongoing debate within the *Journal of Cleaner Production* on the appropriate use, and necessity, of two fundamentally different types of accounting method for managing social/environmental responsibility, namely, attributional and consequential methods. This letter provides a critique of the arguments in Weidema et al. (2019), and analyses the presuppositions underpinning Weidema et al.'s position that only consequential methods are necessary for managing responsibility. By recognising that managing responsibility involves practices such as establishing an initial scope of responsibility and target-setting, in addition to decision-making, it becomes apparent that both attributional and consequential methods are needed.

Introduction

Society requires accounting methods in order to manage its social and environmental responsibilities, which involves practices such as establishing an initial scope of responsibility, target-setting, and decision-making aimed at reducing negative social and environmental burdens. A central debate within the life cycle assessment (LCA) literature, which also has direct applicability to other forms of environmental accounting, concerns the distinction between 'attributional' and 'consequential' methods. Broadly, attributional methods provide inventories of impacts within a normatively defined inventory boundary, which are *in principle* additive, so that the results can be summed to approximate total system burdens. In contrast, consequential methods aim to estimate the system-wide *change* in burdens caused by a specified decision.

In our paper titled '*Coupling attributional and consequential life cycle assessment: a matter of social responsibility*' (Brander et al., 2019) we argue that because attributional and consequential methods provide different types of information and fulfil different purposes (i.e. establishing an initial scope of responsibility, or informing decisions, respectively), both are necessary for managing social/environmental responsibility. This conclusion was partly framed in response to Weidema et al.'s (2018) paper '*Attributional or consequential life cycle assessment: a matter of social responsibility*' which argues that a consequential approach is essential, while an attributional approach is optional. Weidema et al. replied to our paper with a letter titled '*Social responsibility is always consequential – Rebuttal to Brander, Burritt and Christ*', and the present letter provides an

analysis and critique of the main arguments in their letter. Continuing this dialogue in the *Journal of Cleaner Production* is intended to provide an open exchange of views, and to advance the debate.

1. Information on total system-level burdens is needed

Weidema et al. (2019) agree that consequential results cannot be summed to estimate total system-level burdens, for example global GHG emissions or total water consumption within a water catchment area etc., but argue that this information is not necessary for managing social/environmental impacts. Instead they suggest that 'a sustainable state at system level is achieved if each and every product provides a net neutral or net positive contribution, a criterion that can only be determined by a consequential model' (2019, p. 12). This argument is problematic as sustainability at the system level does not require that 'each and every product provides a net neutral or net positive contribution', e.g. sustainability at the system level can also be achieved if some products create net negative contributions while other products have net positive contributions. It is the aggregate *system-level* impacts that society needs to understand in order to know whether sustainable thresholds are exceeded, and, as acknowledged by Weidema et al., consequential methods cannot provide that information, whereas as attributional methods can.

2. Consequentialism entails that one is responsible for all the consequences of all one's actions

An argument against consequentialism within the field of philosophical ethics (presented in Brander et al. (2019)) is that consequentialism entails that decision-makers have to consider the consequences of all the actions they could possibly undertake, and that this is excessively and impractically demanding (Williams, 1995). Weidema et al. (2019) seek to counter this problem by quoting the definition of 'corporate social responsibility' in ISO 26000:2010, which states that an 'organisation does not always have a responsibility to exercise influence purely because it has the ability to do so' (ISO, 2010, sec. 5.2.3). However, following pure consequentialism, this is precisely what an organisation has to do, i.e. from a consequential perspective there is no basis for delimiting the consequences that one takes responsibility for. The only way to delimit the set of consequences is to introduce an additional normative rule, which is exactly what is done in ISO 26000:2010. E.g. '…it [the organisation] cannot be held responsible for the impacts of other organisations over which it may have some influence' (ISO, 2010, sec. 5.2.3) *is* a normative rule that delimits the consequences that an organisation is responsible for. This form of delimitation, which is needed in order to avoid the excessive demands of pure consequentialism, is also precisely the function

provided by attributional inventory boundary-setting, and is one of the reasons that attributional methods are necessary.

3. It is not necessary to assume that all product impacts take place at the same point in time

Although Weidema et al. (2019) accept that attributional methods are additive, i.e. the results can be summed to estimate aggregate system-level burdens, they argue that this additivity is only hypothetical 'in the sense that it requires the unrealistic steady-state assumption that all product impacts take place at the same point in time'. This statement does not appear to be correct as attributional inventories can provide 'date-stamped' information for when impacts occur (as envisaged with dynamic LCA (e.g. Beloin-Saint-Pierre et al. (2014)), so that it is possible to estimate aggregate system-level burdens within any chosen temporal period. Moreover, for some impact categories, notably CO_2 emissions and climate change, the relevant form of additivity is *cumulative*, i.e. whether cumulative CO_2 emissions exceed an established carbon budget, rather than concerning aggregate impacts within a specific temporal window. Whether considering burdens within a specific temporal period or cumulatively, only attributional methods are appropriate for such purposes.

4. Argument that 'it is only consequences that one takes responsibility for' does not entail that all methods are consequential

A final argument in Weidema et al. (2019) suggests that it is always the consequences of human actions that are included in environmental accounts, and that this entails that all environmental accounts are in some sense consequential. However, this argument conflates the items/values within environmental accounts, i.e. environmental burdens caused by human action, with whether the accounting method is *counting* burdens within an inventory boundary or is estimating the *change* in burdens caused by a specified decision, which is the basis of the attributional-consequential distinction. The conflation of these two things can be illustrated with an example: national GHG inventories count anthropogenic GHG emissions, which are the *consequence* of human actions, but such inventories are *attributional*, i.e. they count emissions within a normatively defined boundary and are additive to approximate global emissions. In short, the fact that all environmental accounting methods are concerned with measuring anthropogenic environmental impacts (that are a consequence of human action) does not entail that all environmental accounting methods are consequential methods, nor that only consequential methods are necessary for managing responsibility.

5. Conclusion

In order to understand why Weidema et al. (2019) maintain that only consequential methods are necessary for managing social/environmental responsibility it is useful to look at the presuppositions that underpin that perspective. The key presupposition appears to be that 'environmental assessments are limited to alternative options that have already [been] defined before the assessment' (2019, p. 13), i.e. managing social responsibility is *only* about decision-making between pre-defined options. This perspective overlooks the steps that occur prior to decision-making, i.e. establishing an initial scope of responsibility in order to delimit the universe of possible options that could be considered, and target-setting within sustainable thresholds, both of which are precisely the functions provided by attributional methods (Brander et al., 2019)). Interestingly, Weidema et al. (2019) acknowledge that targets 'play important roles in policy making and management' (2019, pp. 12–13), but don't take the final step of acknowledging that, by implication, the attributional accounting methods that underpin target-setting are therefore also necessary.

One clarification that should be made to the 'coupled' accounting approach proposed in Brander et al. (2019), which may help to dispel a possible misunderstanding, is that it is not envisaged that attributional and consequential methods must be used in tandem every time they are used. Rather, what is envisaged is that attributional methods should be used for establishing an initial scope of responsibility and for setting targets, and that following that exercise consequential methods should be used, on their own, to inform decisions aimed at reducing environmental burdens. Relatedly, it is worth emphasising strong agreement with Weidema et al.'s (2019) statement that 'there is more that unite us than divide us', particularly on the point that consequential methods are necessary for decision-making (and that attributional methods are not appropriate for this purpose).

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